A1 concl'd

optical design and fabrication methods may be used to form various components of an electronic display incorporating teachings of the present invention. Also, the selection of various optical elements, their respective locations and optical characteristics such as aperture, diameter and focal length may be determined in accordance with commercially available techniques associated with digital electronic and holographic displays.

Please replace the paragraph on page 16, line 24 through page 17, line 2 with the following paragraph:

A2

FIGURES 3 and 4 are schematic diagrams showing one example of a lenticular screen display indicated generally at 30. A principle advantage of a lenticular screen display such as display 30 is its superior optical efficiency or brightness compared to a parallax barrier display.

Please replace the paragraph on page 17, lines 3-12 with the following paragraph:

A3

For the example shown in FIGURES 3 and 4 lenticular screen display 30 preferably includes lenticular lens sheet 32 have a plurality of parallel, vertical lenticules 34 formed on one surface thereof. A specially prepared picture or film 38 may be disposed adjacent to lenticular lens sheet 32 opposite from lenticules 34 as shown in FIGURE 4. Picture or film 38 preferably includes one or more 2D images which will be projected from lenticular lens sheet 32 as a horizontal parallax only 3D image.

Please replace the paragraph on page 18, lines 14-19 with the following paragraph:

A4

Parallax barrier screen display 20 and lenticular screen display 30 are horizontal parallax only displays. These displays may be modified to full parallax displays by replacing parallax barrier sheet 22 or lenticular lens sheet 32 with a pinhole array and a fly's eye lens sheet respectively.

Please replace the paragraph on page 19, lines 3-9 with the following paragraph:

A5

Two-dimensional image source 58 is preferably disposed on fly's eye lens sheet 52 opposite from lenslets 54. Two-dimensional image source 58 may be a picture or film

A5 concl'd

as previously described with respect to lenticular screen display 30. For some applications 2D image source 58 may be a moving image screen or other moving image source.

Please replace the paragraph on page 19, lines 10-26 with the following paragraph:

A6

Full parallax displays such as display 50 provide more realistic 3D images as compared to horizontal parallax only displays such as displays 20 and 30. The difference is most apparent when an observer moves in a vertical direction relative to the displays. Another benefit of a full parallax display is in the freedom it allows an observer to view a display from any distance without observing the anamorphic distortions which are inherent in horizontal parallax only displays. The reason for these anamorphic distortions in lenticular displays such as display 30 is the fact that the vertical dimension of the images behind lenticules 34 is fixed. The relative sizes of objects in the real world change with the viewing distance. Since the vertical dimension of objects in lenticular display 30 is fixed, there can only be one viewing distance for which the vertical dimensions of the resulting 3D image are correct.

Please replace the paragraph on page 20, line 17 through page 21, line 5 with the following paragraph:

A7

FIGURE 8 depicts a side view of a model of a cat placed in front of fly's eye lens sheet 52. For purposes of explanation a layer of photosensitive recording material may be placed on lens sheet 52 at the surface previously occupied by 2D image source 58. Lenslets 52 appear to image the cat as one would expect from the laws of optics, namely a small inverted image of the cat from the perspective of each lenslet is imaged behind it on the photosensitive recording material at the 2D image source plane. Since the cat is facing fly's eye lens sheet 52, each lenslet 54 images a front view of the cat. When the photosensitive recording material is developed and placed exactly back in the same position it was in during exposure, a reconstructed image of the cat will be presented, as the laws of optics would predict, in front of fly's eye lens sheet 52.

Please replace the paragraph on page 25, lines 9-16 with the following paragraph:

A8

Various types of commercially available light valves and light modulators may be satisfactorily used as high resolution 2D image source 78. For the embodiment shown in FIGURE 9, high resolution 2D image source 78 may be a digital flat panel display (FPD), an LCD or CRT. Other types of high resolution 2D image sources include light emitting diodes (LED). DMD mirrors and MEMS may also be satisfactorily used to form lenslet pixel modules 70.

Please replace the paragraph on page 25, line 24 through page 26, line 4 with the following paragraph:

A9

A standard video source (not expressly shown) such as NTSC or VGA may be connected to high resolution 2D image source 78. For other applications, digital data may be supplied to high resolution 2D image source 78 which then converts the digital data into the desired 2D image. An important aspect of the present invention includes providing moving images or even live images to lenslet pixel modules 70.

In the Claims

Please substitute the following claims for the pending claims with the same number:

A10

11. (Amended) The apparatus of Claim 1 wherein at least one of the plurality of two-dimensional moving image sources is selected from the group consisting of a cathode ray tube, a liquid crystal display, digital micro device mirror, a flat panel display, a respective section of a diffuser backlit by a video projection system, a microelectronicmechanical system, or a light emitting diode.

A11

14. (Amended) The apparatus of Claim 1 further comprising:

the plurality of lenslet pixel modules disposed in an array relative to each other;

a plurality of sensors interspersed within the array of lenslet pixel modules;

the sensors cooperating with each other to form a sensor array having a first focal plane; and

the lenslet pixel modules cooperating with each other such that the projector array has a second focal plane.

A11 concld

15. (Amended) The apparatus Claim 14 wherein the first focal plane corresponds generally with the second focal plane.

16. (Amended) The apparatus of Claim 14 wherein the first focal plane has an orientation different from the second focal plane.

Sub B2

17. (Amended) A system for presenting a scalable, autostereoscopic image comprising:

a plurality of lenslet pixel modules with each module defined in part by a respective lenslet;

each lenslet pixel module corresponding with a 3D pixel of the autostereoscopic image;

a plurality of two-dimensional image sources associated with and forming a portion of each lenslet pixel module; and

at least one computer processing unit providing an input to at least one of the plurality of two-dimensional image sources.

A12

Sub B3

21. (Amended) The system of Claim 17 further comprising:

a plurality of first computer processing units having at least one video output channel to supply video images to the high resolution image sources;

two-dimensional image source coupled with one of the first computer processing units; and

a master computer processing unit coupled with and supplying data to the first computer processing units.

A13

Sub B3

29. (Amended) A lenslet pixel module for projecting light and sensing light comprising:

a two-dimensional image source operably coupled with a respective lenslet whereby a portion of a selected two-dimensional image may be projected from the lenslet to form a portion of an image;

a sensor disposed within and forming a portion of the lenslet pixel module; and

A13 Concl'd

the sensor operably coupled with a fly's eye lenslet to allow the sensor to detect at least one real object in front of the lenslet pixel module.